IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re United States Patent Application of:		Docket No.:	4230-101-RCE
Applicant:	SHIMURA, Tokihiro	Conf. No.:	6700
Application No.:	10/690,073	Art Unit:	1755
Date Filed:	October 21, 2003	Examiner:	Michael A. Marcheschi
Title:	ABRASIVE, AND ABRASIVE MANUFACTURING METHOD AND DEVICE	Customer No.:	23448

SECOND DECLARATION OF TOKIHIRO SHIMURA UNDER 37 C.F.R. § 1.131 IN U.S. PATENT APPLICATION NO. 10/690,073

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Sir:

I, Tokihiro Shimura, hereby declare:

1. THAT I am the sole inventor of the subject matter disclosed and claimed in United States Patent Application No. 10/690,073 filed on October 21, 2003 in the United States Patent and Trademark Office, entitled "ABRASIVE, AND ABRASIVE MANUFACTURING METHOD AND DEVICE," hereafter referred to as the "Application."

2. THAT the Application as originally filed broadly discloses and claims abrasives composed of metal inorganic powders and that the Application broadly claims such devices in the following independent claims 1, 23, and 24:

> 1. An abrasive composed of an inorganic metal powder that contains at least one of not more than 1.5 wt% boron, not more than 0.1 wt% aluminum and not more than 0.1 wt% titanium, and meets all the following conditions:
> (1) its true specific gravity is 4 g/cm^3 or more;
> (2) its average particle diameter is from 5 μm to 50 μm inclusive;
> (3) its maximum particle size is 100 μm or less;
> (4) its hardness (HMV) is from 110 to 340 inclusive,
> with the proviso that when the inorganic metal powder contains titanium in the absence of boron and aluminum, the inorganic metal powder further contains silicon in an amount of at least 0.8 [[0.7]] wt%.
>
> 23. An abrasive manufactured by an abrasive manufacturing method comprising the steps of:
> causing molten inorganic metal containing at least one of not more than 1.5 wt% boron, not more than 0.1 wt% aluminum and not more than 0.1 wt% titanium contained in a tundish including an ejecting nozzle to eject from the ejecting nozzle, with the proviso that when the molten inorganic metal contains titanium in the absence of boron and aluminum, the molten inorganic metal further contains silicon in an amount of at least 0.8 [[0.7]] wt%; and
> ejecting a pressurized fluid onto the molten metal ejected from the ejecting nozzle in such a manner that the pressurized fluid will form a conical shape, which converges downwards, and will surround the molten metal, thereby powdering the molten metal;
> wherein the conical shape that is formed by ejection of the pressurized fluid has a vertex angle that is set between not less than 10 degrees and less than 30 degrees.
>
> 24. An abrasive manufactured by a method including use of an abrasive manufacturing device, said abrasive comprising an inorganic metal powder containing at least one of not more than 1.5 wt% boron, not more than 0.1 wt% aluminum and not more than 0.1 wt% titanium, with the proviso that when the inorganic metal powder contains titanium in the absence of boron and aluminum, the inorganic metal powder further contains silicon in an amount of at least 0.8 [[0.7]] wt%, said inorganic metal powder having (i) a true specific gravity of at least 4 g/cm^3, (ii) an average particle diameter in a range of from 5μm to 50 μm inclusive, (iii) a maximum particle size not exceeding 100 μm, and (iv) an HMV hardness in a range of from 110 to 340 inclusive, said method comprising :
> (1) providing said abrasive manufacturing device, comprising:

a tundish for containing molten metal containing at least one of boron, aluminum and titanium;

an ejecting nozzle mounted on the tundish to cause the molten metal contained in the tundish to eject out; and

an atomizing nozzle for ejecting a pressurized fluid onto the molten metal ejected from the ejecting nozzle in such a manner that the pressurized fluid will form a conical shape, which converges downwards, and will surround the molten metal;

wherein the atomizing nozzle causes the pressurized fluid to eject so that the conical shape that is formed by ejection of the pressurized fluid has a vertex angle that is between not less than 10 degrees and less than 30 degrees;

(2) causing said molten metal to eject from the ejecting nozzle; and

(3) ejecting said pressurized fluid onto the molten metal ejected from the ejecting nozzle to surround and powder the molten metal, thereby forming said abrasive.

3. THAT I am aware that the Application has been examined by the United States Patent and Trademark Office, that I am aware that Office Actions were issued on June 14, 2006 and January 9, 2007 by the United States Patent and Trademark Office, and that I am aware that the claims of the Application as reproduced herein have been rejected for lack of enablement of a powder containing silicon in an amount of at least 0.8 weight percent, and on various prior art grounds each relying upon the disclosure of U.S. Patent No. 6,712,873 to Bergkvist et al. ("Bergkvist '873")..

4. THAT I have been informed by my legal representatives that the prior art-based rejections of the claims of the Application can be overcome by presenting evidence to the United States Patent and Trademark Office of my possession of our claimed invention prior to the effective date of the reference identified in Paragraph 3, and that said effective date has been identified to me by such legal representatives as June 14, 2002 (such date hereafter being referred to as the "Effective Date").

5. THAT attached in Exhibits 1A and 1B hereof are (Exhibit 1A) a true and exact copy of a Japanese language three-page memorandum, with the addition of the identifier "Evidence 1" at upper left subsequently added thereto, and (Exhibit 1B) an accurate English language translation of pertinent portions thereof, documenting an internal meeting regarding development of the abrasives composed of metal inorganic powders, on which documents all dates (i.e., appearing on page 1/3 thereof) have been blacked out, but which dates are prior to the Effective Date as listed hereinabove; that such memorandum refers in pertinent part (i.e., at page 3/3) to:

"(1) Atomization conditions" at an "angle → 30°→ 20°→ 10° " and "pressure;"

"(2) Steel components" of "410 M/C (C – 0.2%") → Concept of hardness C 0.01, Si 0.8, Mn 0.8, [and] Cr 12.5;" and

(3) "Addition of boron 410L+B;"

and further contains a Table at page 3/3 thereof depicting various "Demanded qualit[ies]" – namely, "Single particle," "Spheroidizing," "-10μm," "Hardness," and "Heat resistance" – versus four "Proposed components" – namely, "(1) 410 M/C," "410L+B," "436L," and "Current status SUH21."

6. THAT attached in Exhibits 2A and 2B hereof are (Exhibit 2A) a true and exact copy of a Japanese language three-page document entitled "Improvement of quality of S9#1000 blast material," with the addition of the identifier "Evidence 2" at upper left subsequently added thereto, and (Exhibit 2B) an accurate English language translation of pertinent portions thereof, documenting an atomization test, on which documents all dates have been blacked out, but which dates are prior to the Effective Date as listed hereinabove, that such documents state in pertinent part:

(2) Test for improvement (first)

An atomization test was conducted with two standards of component systems. The selection of components was made with the aim of obtaining particles with a rounded shape. ...

(3) Test results

(3-1) Shapes (SEM photographs)

(A) Comparison between the current product, improved products (1) and (2)

* * *

Both improved products (1) and (2) contain many fine powders with a particle size of 10μm or less because the particle size is measured before adjustment. Many of the large particles form aggregated (granulated) powders.

(B) State in which fine powders have been removed: (state in which the particle size has been adjusted to 20 to 70 microns) 325/625 mesh product

* * *

(3-2) Comparison of powder hardness

The powder hardnesses of the three kinds of products (i.e., the current product, improved product (1) and improved product (2) are under research. (The results will be confirmed on [DATE OMITTED]).

7. THAT attached in Exhibits 3A and 3B hereof are (Exhibit 3A) a true and exact copy of a Japanese language single-page document entitled "Certificate of Test," with the addition of the identifier "Evidence 3" at upper left subsequently added thereto, and (Exhibit 3B) an accurate English language translation of pertinent portions thereof, documenting an atomization test, on which documents all dates have been blacked out, but which dates are prior to the Effective Date as listed hereinabove, that such documents provide in pertinent part:

Certificate of Test

* * *

Product name: stainless steel powder

* * *

Chemical component (mass %)		Standard value	Result value
	C	MAX 0.150	0.059
	Si	MAX 1.00	0.80

	Mn	MAX 1.00	0.81
	P	MAX 0.040	0.017
	S	MAX 0.030	0.007
	Ni	MAX 0.60	0.13
	Cr	11.00~13.50	12.39
	O (ppm)	*(not translated)*	2500
(not translated)	B	MAX 0.5	0.3

Physical property

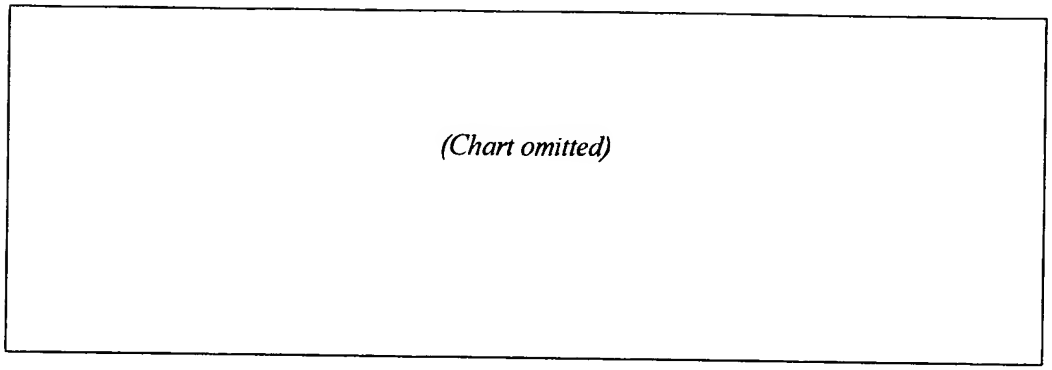
Particle size distribution (mass %)		Standard value	Result value
Over 70	μm	*(not translated*	2.1
70-60	μm	*(not translated*	2.1
60-50	μm	*(not translated*	5.0
50-30	μm	*(not translated*	25.2
30-10	μm	*(not translated*	55.9
10-5	μm	*(not translated*	7.3
5-	μm	*(not translated*	1.4
Averaged particle	μm	*(not translated)*	24.26
Tap density	g/cm^3	*(not translated*	4.56

8. THAT attached in Exhibits 4A and 4B hereof are (Exhibit 4A) a true and exact copy of a Japanese language one-page document entitled "Test results of particle size distribution" with the addition of the identifier "Evidence 4" at upper left subsequently added thereto, and (Exhibit 4B) an accurate English language translation of pertinent portions thereof, documenting test results for particle size distribution" on which documents all dates have been blacked out, but

which dates are prior to the Effective Date as listed hereinabove, that such documents provide in pertinent part:

[%] Frequency

Accumulating total [%]



Particle diameter [μm]

(CH)	Particle diameter (μm)	Accumulating total (%)	Frequency (%)
1	1.00	0.00	0.00
2	2.00	0.00	0.00
3	3.00	0.00	0.00
4	4.00	0.13	0.13
5	5.00	1.44	1.31
6	10.00	8.70	7.25
7	15.00	21.84	12.64
8	20.00	37.03	15.69
9	25.00	51.45	14.42
10	30.00	64.60	13.15

11	40.00	80.37	15.77
12	50.00	89.81	9.44
13	60.00	95.60	5.98
14	70.00	97.92	2.12
15	80.00	99.08	1.15
16	100.00	100.00	0.92

9. THAT such disclosure in Exhibits 1A-4B about metal inorganic powders, including disclosure of such powders provided at "Atomization conditions" at an "angle → 30°→ 20°→ 10°" and "pressure;" with "Steel components" of "410 M/C (C – 0.2%") → Concept of hardness [including] C 0.01, Si 0.8, Mn 0.8, [and] Cr 12.5" and "Addition of boron;" with consideration given to several "[d]emanded quality[ies]" – namely, "single particle," "spheroidizing," "-10μm," "hardness," and "heat resistance;" produced by "atomization" ... "with the aim of obtaining particles with a rounded shape" to provide powders with particles including component percentages of "C 0.059; Si 0.80; Mn 0.81; P 0.017; S 0.007; Ni 0.13; Cr 12.39; and B 0.3" (Exhibits 3A-3B); with the powders ranging in size from "10μm or less" (Exhibits 1A-1B), "20 to 70 microns" (Exhibits 2A-2B), 5 to 70 μm (Exhibits 3A-3B), and 5 to 100 microns (Exhibits 4A-4B); in the aggregate evidences conception of the inventive subject matter in claims 1, 23, and 24 of the Application, which relate to abrasives composed of metal inorganic powders as provided hereinabove.

10. THAT all of the conception and reduction to practice of the invention claimed in the present application, as documented by the work described hereinabove, was performed in Japan after Japan's entry into the WTO.

11. THAT conception of the inventive subject matter in claims 1, 23, and 24 – as evidenced by the Exhibits attached hereto and including all compositions meeting the claimed criteria – was actually completed prior to the Effective Date of Bergkvist '873, that conception of the subject matter of the remainder of the pending claims was further completed prior to the Effective Date of Bergkvist '873, and that Japanese Patent Application No. 2002-313341 was filed within eight months following such conception, demonstrating reasonable diligence.

12. THAT abrasives useful for grinding various articles including workpieces and containing widely varying amounts of silicon (e.g., in the form of silica (SiO_2) and other chemical forms) have been well known in the art for years prior to the October 28, 2002 filing date of Japanese Patent Application No. 2002-313341 on which the present U.S. patent application is based.

13. THAT the present application discloses various abrasive compositions having amounts of silicon exceeding 0.8 weight percent, including compositions having silicon in amounts of 1.3 and 1.4 weight percent (e.g., see application page 17), such that upon reading the present application, a person of ordinary skill in the art at the time my invention was made would readily understand that the invention is not limited to abrasive compositions having exactly 0.8 weight percent silicon.

14. THAT the performance of abrasive compositions including amounts of silicon exceeding 0.8 weight percent within the scope of the claims of the present invention could be predicted by

one of ordinary skill in the art at the time my invention was made, since the effect of silicon content on specific gravity, hardness, and other pertinent characteristics of an abrasive powder could be predicted from any of scientific texts and conventional testing methods that do not require undue experimentation.

15. THAT, with the benefit of reading the present application, a person of ordinary skill in the art at the time my invention was made would be easily able to produce abrasive compositions as presently claimed – including amounts of silicon exceeding 0.8 weight percent – by merely adjusting the proportion of ingredients supplied to the tundish of the manufacturing device shown and described in the present application, and then measuring the specific gravity, particle diameter / particle size, and hardness characteristics of the resulting powder using conventional methods without require undue experimentation.

16. THAT no special chemical reactions or unpredictable processes must be employed to produce abrasive compositions including amounts of silicon exceeding 0.8 weight percent within the scope of the claims of the present application.

As a below-named declarant, I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements are made with the knowledge that willful false statements, and the like, so made are punishable by fine or imprisonment, or both, under Section 1001 or Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Respectfully submitted,

T. Shimura

TOKIHIRO SHIMURA

Dated: February 21, 2007

Evidence 1

(坂上 加藤 [illegible] 大[illegible] [illegible] 工藤 [illegible] 沼沢 [illegible]) 1/3

吉田 → 坂本

[redacted] F.H.P 殿向 SUH21 [illegible] に関して

(第3回 F.H.P 案内 [illegible] 打合せ内容)

(1) 現状品の使用状況と問題点

① 使用状況

[illegible] 500 [illegible] ([illegible]/週)

② 問題点

・投入量 500 [illegible] 250 [illegible]

[illegible]

当方 [illegible] 大きな問題になっている。

⇓

4～6日の [illegible] 検討をしなければならない。

(2) F.H.P の要求 ([illegible])

(イ) 改善要求 ([illegible])

① 平均粒径 [illegible] 20μm の粉末

② 10μm 以下の粉末を極力少なく

③ 丸い形状の粉末

ATHY [illegible] 3/22

・[illegible] 新 － [illegible]

・[illegible] － [illegible]

・[illegible] － [illegible]

(ロ) 現状品の納入 [illegible]

([illegible])

① [illegible] － 4t/週 ⇒ [illegible] 1t/週

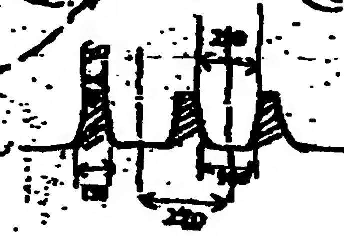
② 4～6日 [illegible]

[illegible] 1/20

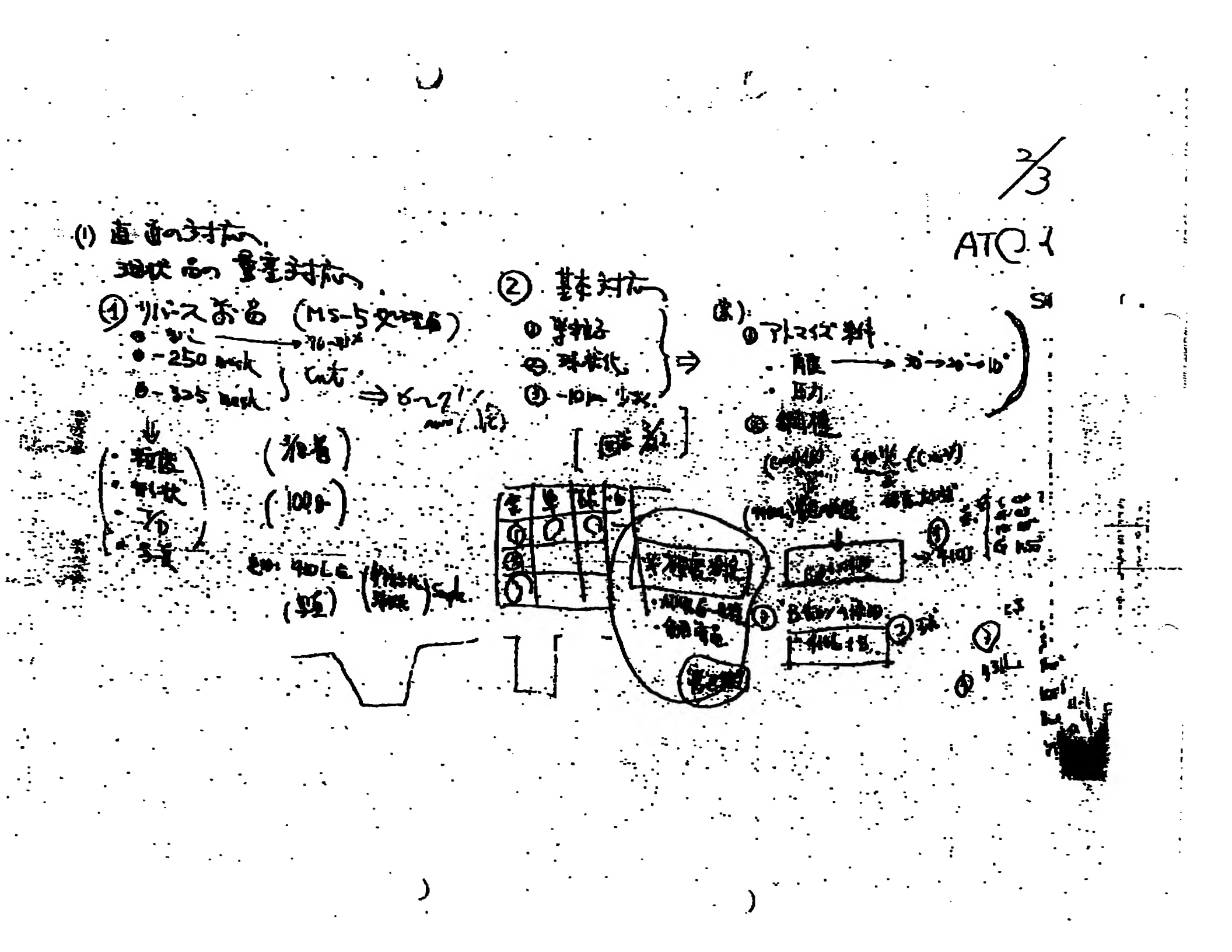
[illegible]

[illegible] 500 [illegible]

3/[illegible] ([illegible])



ATC-1



	要求品質				
成分案	[illegible]	球状化	−10μm	硬さ	耐熱性
① 410L	○	○		○	△
② 410L+B B:0.50%	◎	◎	△	△	△
③ 436L	○	○		○	○
現状 SUH21	△	△	△	○	○

ATO (-)

(案) ① アトマイズ条件
・ 角度 → 30°→20°→10°
・ 圧力
② 鋼種

SUH-21 の代替。

(C [illegible]) 410L (C [illegible])
[illegible]
[illegible]
Cr [illegible]
→ ① 410L: C 0.07, Si 0.3, Mn 0.7, Cr 11.5
③ B [illegible] ② 410L+B
③ C 0.02, Si 0.3, Mn 0.3, Cr 17.5, Nb 0.9, Mo 0.4
④ 436L

Translation

Evidence 1

Page 1/3

[redacted]

Regarding SUH-21 70J for FHP:

(Content of the meeting at FHP in Miyazaki on [redacted]

Page 3/3

	Demanded quality				
Proposed components	Single particle	Spheroidizing	-10μm	Hardness	Heat resistance
(1) 410 M/C	Good	Good		Good	Fair
(2) 410L+B B: 0.50% ↑ should be confirmed	Excellent	Excellent	Fair	Fair +fragility	Fair
(3) 436L	Good	Good		Good	Good
Current status SUH21	Fair	Fair	Fair	Good	Good

(1) Atomization conditions

- angle → 30°→ 20°→ 10°
- pressure

(2) Steel components

410 M/C (C - 0.2%)

↓

Concept of hardness

C 0.01
Si 0.8
Mn 0.8
Cr 12.5

(3) Addition of boron

410L+B

(4) C 0.02
Si 0.8
Mn 0.8
Cr 17.5
Mo 0.9
Ni 0.4

Evidence 2

S9#1000 プラスト材の品質改善対策

[redacted]

（株）アトミックス　粉末製造部

現在、九州 FHP 社殿にて使用して頂いている「プラスト材　S9#1000」に関して、

- 凝集粉末が多く、単一粒子が少ない。
- 形状的に丸みが少ない。
- 使用時に凝集粒子が分裂し微粉末の割合が多くなる。

等の問題点が指摘されております。

これらの，問題点を解決する為の粉末製造プロセスの改善を行い、お客様の満足度をより高めることを目的として検討し，改善を計る。

（1）現状の問題点と原因及び対応策

問題点	原因系	対応策
①凝集粒子が多い。	材質の影響で丸くなりにくく凝集粒子が多くなる。	①融点の低い材質への変更。 ②丸くなり易い材質への変更。
	融点と溶融金属温度差が少なく分散不十分で凝集する。	③融点との温度差を大きくとる。
	ｱﾄﾏｲｽﾞ条件が凝集防止に最適ではない。	④造粒しにくいｱﾄﾏｲｽﾞ条件の採用
②形状的に丸みが少ない。	材質・・・(同上)	①表面張力の大きい成分系とする。
	融点と溶融金属温度・・・(同上)	②融点との温度差を大きくとる。
	ｱﾄﾏｲｽﾞ条件・・・(同上)	③造粒しにくいｱﾄﾏｲｽﾞ条件の採用。
③微粒子が多い	ｱﾄﾏｲｽﾞ条件が微粉末が多い条件である。	①平均粒子径が大きくなるようなｱﾄﾏｲｽﾞ条件。
	凝集粒子が分離して微粉末がふえる。	①凝集粒子の減少

（2）対策テスト（第一回目）

今回の第一回目のテスト；

成分系を２水準にして、アトマイズテストを実施した。

今回の成分選定は、形状的に丸くすることを狙った。丸くすることで，凝集も防止できる可能性があるのでその確認も合わせて行うこととした。

但し、アトマイズ条件は、現状のレベルと同一とした。

表－1 に今回のテスト材の成分系を示す。

表－1　テスト材の成分系

	名称	成分系
現状品	S#1000　70J	SUH-21 相当材（Fe+Cr+Al+その他添加材）
対策品①	ATOP-MJ	Fe+Cr＋添加材
対策品②	ATOP-MB	Fe+Cr＋添加材 － B 0.3%

（3）テスト結果

8－1）形状(SEM 写真)

(A)現状品、対策品①、②の比較

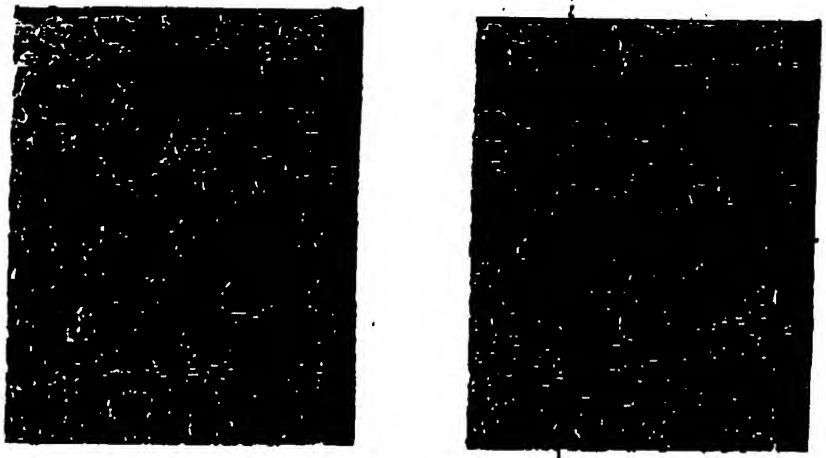
現状品　　対策品①　　対策品②

対策品①、②、共に、微粉末側（10μ以下の粉末）の調整前の粒度であるため、10μ以下の細かい粉末が多い。

また、大きい粒子では凝集（造粒）状態の粉末が多い。

丸さの程度は、現状品と比較すると改善されている。

(B)微粉末を除去した状態；(20-70 ミクロンに調整した状態) 325/625mesh 品



対策品①　　対策品②

丸い粒子と凝集している粒子が混在している。

凝集している粒子は、大きい粒子に小さい粒子がくっ付いた状態のもの。
この凝集粒子の発生を防止する対策が必要となる。

3－2）粉末の硬さ比較

現状品、対策品①、対策品②の3種類の粉末硬さの調査中。
（3月27日に結果確認予定）

（4）今後の進め方

今回のテスト結果を踏まえて、今後の改善計画を立てる。

① 凝集粒子の改善・・・アトマイズ条件を変更して、凝集（造粒）を防止する。
② 丸さの改善　・・・今回のテストにて、形状的にある程度丸くすることは可能である。この成分系にて①の改善テストを進める。
③ 微粒子を減少　・・・凝集防止を進める。
④ 粉末硬さの比較・・・今回の成分系での粉末硬さを測定し、現状品に近い硬さの成分系を選定する。

以上の対策を日程を立てて実施していく。[redacted]

以上。

Evidence 2

Improvement of quality of S9#1000 blast material

[redacted]

ATMIX, Inc., Powder Production Department

(1) Current problems, causes and improvements

[table omitted]

(2) Test for improvement (first)

This time's first test:

An atomization test was conducted with two standards of component systems.

The selection of components was made with the aim of obtaining particles with a rounded shape. There was a possibility that a rounded shape may prevent aggregation, so the confirmation of that possibility was also investigated.

However, the atomization conditions were the same as the current level.

Table 1 shows a component system for this time's test material.

Table 1: Test material component system

[table omitted]

(3) Test results

(3-1) Shapes (SEM photograph)

(A) Comparison between the current product, improved products (1) and (2)

[photo] [photo] [photo]

Current product Improved product (1) Improved product (2)

Both improved products (1) and (2) contain many fine powders with a particle size of 10μm or less because the particle size is measured before adjustment.
Many of the large particles form aggregated (granulated) powders.
The degree of the roundness is improved compared to the current product.

(B) State in which fine powders have been removed: (state in which the particle size has been adjusted to 20 to 70 microns) 325/625 mesh product

[photo] [photo]

Improved product (1) Improved product (2)

Rounded particles and aggregated particles coexist.
Aggregated particles are formed by small particles adhering to large particles.
Measures to prevent the occurrence of these aggregated particles will be necessary.

(3-2) Comparison of powder hardness

The powder hardnesses of the three kinds of products, i.e., the current product, improved product (1) and improved product (2) are under research. (The results will be confirmed on [redacted]

株式会社アトミックス
〒039-1161
Tel.0178-73-2501
Fax.0178-73-2510

ATMIX CORPORATION
4-44, Aza Kawaragi-aza, O-aza,
Hashinoha-shi,Aomori-ken, 039-1161 JAPAN
Tel.+81-178-73-2501
Fax.+81-178-73-2510

ATMIX

Evidence 3

検 査 証 明 書

発行日 [redacted] (No. F13230137A)

需要家	: 九州エフエイチピー株式会社
品 名	: ステンレス鋼パウダー
契約量	: 1kg
ロット番号	: 23V3152
鋼種記号	: ATOP-MJ
公称粒度	: PF-80F
容器数	: 1
総重量	: 1kg

化学成分(mass %)			規格値	実績値
	C	:	MAX 0.150	0.059
	Si	:	MAX 1.00	0.80
	Mn	:	MAX 1.00	0.81
	P	:	MAX 0.040	0.017
	S	:	MAX 0.030	0.007
	Ni	:	MAX 0.60	0.13
	Cr	:	11.00~13.50	12.39
	O (ppm)	:	報告	2500
Bは、ノウハウのため、証明書には載せず。 →	B		MAX 0.5	0.3

物理的性質			規格値	実績値
粒度分布(mass %)				
	+70	μm :	報告 :	2.1
	70~60	μm :	報告 :	2.1
	60~50	μm :	報告 :	6.0
	50~30	μm :	報告 :	25.2
	30~10	μm :	報告 :	55.9
	10~5	μm :	報告 :	7.3
	-5	μm :	報告 :	1.4
平均粒径		μm :	報告 :	24.46
タップ密度		g/cm3 :	報告 :	4.56

上記注文品はご指定の規格または仕様にしたがって製造され、その要求事項を満たしていることを証明いたします。

品質管理責任者

(岡部 孝悦)

Evidence 3

Certificate of Test

Date of issue: [redacted]

Product name: stainless steel powder

Chemical component (mass %)	Standard value	Result value
C:		
Sl:		
Mn:		
P:		
S:	[data omitted]	
Ni:		
Cr:		
O (ppm)		
B		

Physical property

Particle size distribution (mass %)	Standard value	Result value
Over 70 μm		
70-60 μm		
60-50 μm		
50-30 μm	[data omitted]	
30-10 μm		
10-5 μm		
5- μm		
Averaged particle diameter μm		
Tap density g/cm3		

We hereby certify that the above ordered product has been produced in accordance with the designated standards/specifications, and meets the requirements of the designated standards/specifications.

Quality control manager

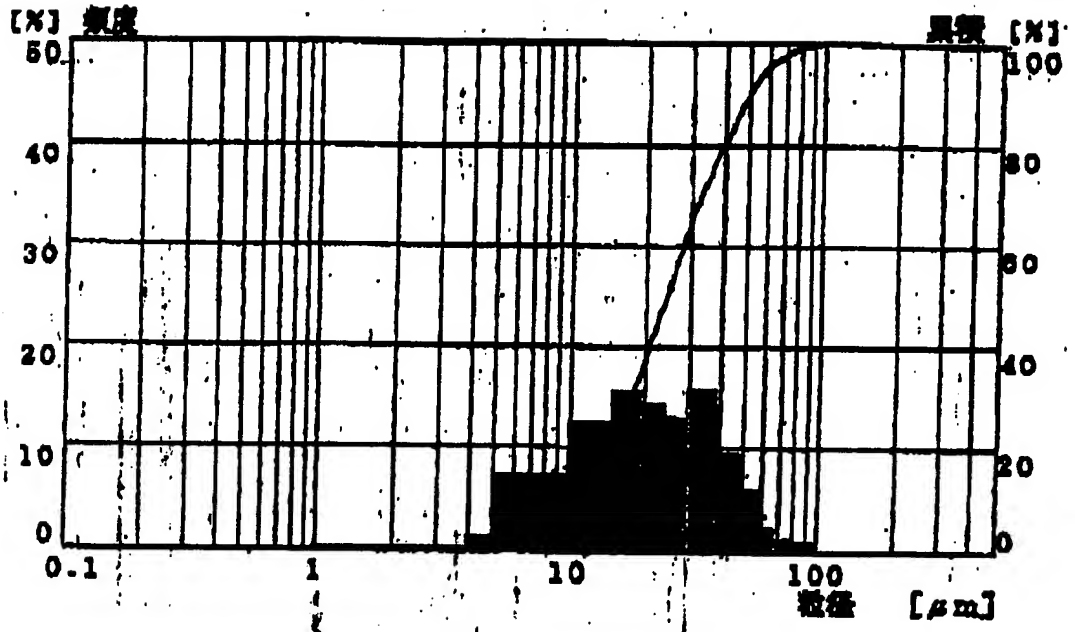
(seal)

Evidence 4

粒度分布測定結果

CHUETSU GRAPHITE WORKS CO.,LTD.

RUN No.	0	サンプルタイム	60
サンプル名 (ID-1)	ATOP-MJ:PF-80F	計測使用レンジ	0.9 - 176
ロットNo. (ID-2)	23V3152	データアドレス	833
計測日付	[redacted]	コメント	
計測時間	17:27	備考	[redacted]



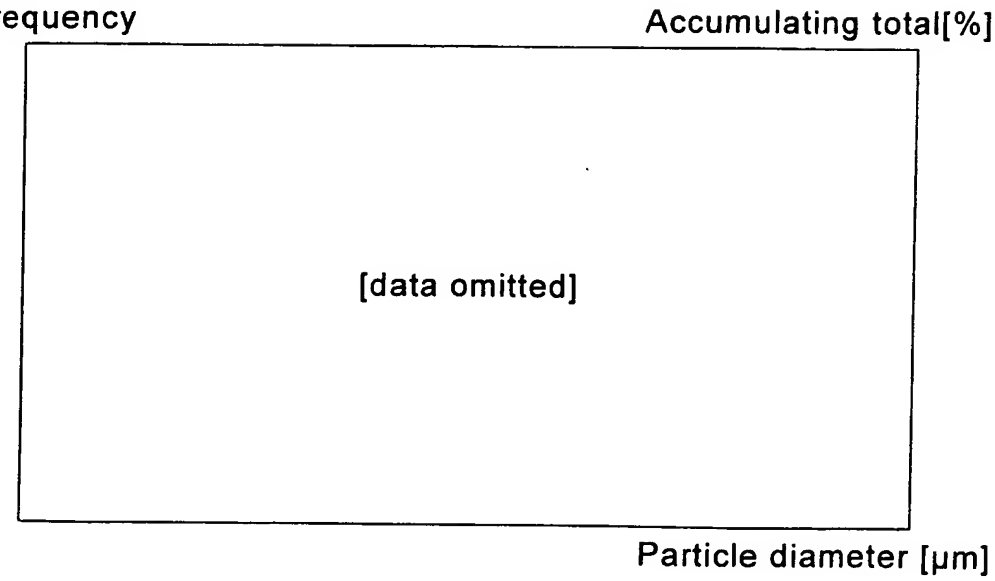
(CH)	粒径 (μm)	累積 (%)	頻度 (%)
1	1.00	0.00	0.00
2	2.00	0.00	0.00
3	3.00	0.00	0.00
4	4.00	0.13	0.13
5	5.00	1.44	1.31
6	10.00	8.70	7.25
7	15.00	21.34	12.64
8	20.00	37.03	15.69
9	25.00	51.45	14.42
10	30.00	64.60	13.15
11	40.00	80.37	15.77
12	50.00	89.81	9.44
13	60.00	95.80	5.98
14	70.00	97.92	2.12
15	80.00	99.08	1.15
16	100.00	100.00	0.92

累積データ	
DV	= 0.1889
10%	= 10.65
50%	= 24.46
90%	= 50.29
MV	= 27.87
CS	= 0.307

Evidence 4

Test results of particle size distribution

Sample name (ID-1): ATOP-MJ: PF-80F
Lot No. (ID-2): 23V3152
Date of measurement: [redacted]
Time of measurement: 17:27



(CH)	Particle diameter (μm)	Accumulating total (%)	Frequency (%)
[data omitted]			